



# Self-help TV Relays and Digital Switchover

Guidance for operators

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## Section 1

# Introduction

- 1.1 The programme of licensing self-help TV relay transmitters was introduced by the Home Office in 1980, as a means of helping small communities have access to the Public Service Broadcasting (PSB) TV channels: BBC1, BBC2 and ITV, and later Channel 4, S4C and Channel 5. These communities were usually too small to be likely to be served by a transmitter built by the broadcasters.
- 1.2 Self-help schemes were generally funded by the local community and were designed to cover relatively small areas and numbers of households. Later schemes were set up (particularly in urban areas) to rectify a loss or reduction in the quality of terrestrial TV reception due to interference caused by new buildings, such as a football stadium or a high rise building.
- 1.3 Responsibility for licensing self-help schemes transferred to Ofcom in December 2003. Ofcom is the regulator of the broadcasting and telecommunication industries with special responsibilities for management of the spectrum (or airwaves) used by wireless services including television and radio broadcasting. Ofcom operates independently of Government, and our main responsibilities are set out in the Communications Act 2003.
- 1.4 Digital switchover is the process by which all of the UK's television services will switch to broadcasting programmes digitally. The process will involve switching off conventional analogue TV signals and boosting digital signal coverage across the UK. Digital switchover will happen on a regional basis, with Whitehaven leading the UK's switchover to digital TV in October 2007. Switchover will then take place on a region-by-region basis across the UK between 2008 and 2012, in accordance with the regional timetable set out by Government<sup>1</sup>.
- 1.5 The broadcasters will continue to use all of their existing analogue transmitter sites to broadcast digitally after switchover. Therefore the coverage of the digital signals will closely match that currently achieved by the analogue television services. It is estimated that 98.5% of UK households are served by good quality analogue television services from a broadcaster-operated transmitter, and it is expected that the same percentage of viewers will be able to receive digital signals from a terrestrial transmitter after switchover.
- 1.6 Viewers in some areas where analogue signals are currently of poor quality may find that their reception improves as a result of switchover, and hence a self-help transmitter may no longer be required.
- 1.7 All communities operating self-help relays will be affected by digital switchover. Most obviously, the analogue signals that are boosted by their transmitters will be switched off. In some cases, the self-help relay will no longer be required as digital signals will be better than the analogue signals they replace, or because viewers may choose to take up digital viewing by another means (for example satellite or cable).
- 1.8 All communities that wish to retain their self-help transmitter will need to take action to ensure that their systems continue to operate satisfactorily and are properly

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<sup>1</sup> An up-to-date timetable for when switchover will occur in each region is available from Digital UK at [www.digitaluk.co.uk](http://www.digitaluk.co.uk).

licensed after switchover. Existing licences are valid only for analogue transmissions and all communities that wish to continue operating a self-help relay after switchover must re-license them as a digital self-help relay.

- 1.9 This guidance note provides information and guidance for operators of self-help schemes on their options for deciding whether to retain their relays, and the steps they will need to take in the run up to switchover.

## Section 2

# Digital switchover and self-help relays

- 2.1 Digital switchover will affect every self-help relay in the UK and it is important that operators of these systems make adequate preparations for switchover.
- 2.2 For a self-help relay to transmit signals legally, its operator must hold a valid licence granted by Ofcom<sup>2</sup>. At switchover, the existing analogue self-help licences will be revoked, so operators who want to continue operating their transmitter, and broadcast digital signals, will need to apply to Ofcom for a digital self-help licence. When we consider licence applications, we will need to confirm, amongst other things, that transmission frequencies are available for the scheme to use after switchover.
- 2.3 Depending on the age and type of self-help relay, some operators may also need to adjust or replace some or all of the transmitter equipment so that it transmits digital signals reliably.
- 2.4 Self-help relays are privately owned and operated systems, and the costs of any conversion work will need to be met by the scheme operators. While Ofcom will meet the cost of the frequency planning work required to prepare for the conversion of existing self-help schemes, we cannot provide financial help with equipment conversion costs. If the number of households that contribute to the upkeep of the system is very small, it may be more economic for viewers to adopt an alternative means of receiving television, such as satellite or cable.

### The need for self-help transmitters

- 2.5 Not all parts of the UK are served by terrestrial television. The broadcasters have built an extensive network of over 1,150 transmitters to bring coverage of the main four analogue channels to an estimated 98.5% of households, but some locations remain unserved. These are usually in remote areas where a combination of a sparse, scattered population and demanding terrain means that it has not been practical or economic for the broadcasters to build a transmitter.
- 2.6 Some self-help relays have also been installed in built-up areas where television reception to a neighbourhood has been degraded by the construction of a large building.
- 2.7 A self-help relay improves conventional analogue television coverage (usually to a fairly small area). It works by picking up weak signals from a distant transmitter, boosting these signals, and finally beaming the stronger signals to local viewers' homes.

### Digital switchover and its impact on self-help transmitters

- 2.8 Digital Switchover is the process by which the UK's television system will switch to using digital signals. Digital switchover will happen on a regional basis, with Whitehaven leading the UK's switchover to digital TV in October 2007. Switchover will then take place on a region-by-region basis across the UK between 2008 and

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<sup>2</sup> Licences will be issued under the Wireless Telegraphy Act 2006.

2012, followed by the Channel Islands in early 2013, in accordance with the regional timetable set out by Government..

- 2.9 The broadcasters will convert all of their transmitters to digital operation during this period. When switchover happens in a particular area, the conventional analogue signals will be switched off and will be replaced by 'boosted' digital signals. A transmitter's place in the switchover sequence will depend on the ITV regional service it broadcasts.
- 2.10 The actual switchover process at a particular transmitter will take place in a number of phases. The first phase will involve switching off one of the analogue channels, and replacing it with a high-power digital signal (containing a digital version of the analogue channel which has been turned off). This will allow viewers to make final preparations for switchover, such as ensuring they have installed digital equipment and carrying out any aerial adjustments which might be necessary. Around a month later, the remaining analogue channels will be switched off and replaced with the rest of the digital signals.
- 2.11 Annex 3 contains a list of all currently licensed self-help schemes and the ITV regions which they broadcast, along with the switchover date for that region. More detailed dates will be made available by Digital UK as switchover approaches in each region.

### **Technical considerations**

- 2.12 At digital switchover, the analogue signals being transmitted by the broadcasters will be switched off and be replaced by digital signals. These digital signals are quite different in nature to analogue signals. A transmitter that can boost analogue signals will not necessarily be suitable for digital signals. This means that operators may need to replace some or all of the equipment that makes up the self-help transmitter.
- 2.13 Self-help schemes are privately owned and operated, and the responsibility for installation and maintenance of these systems rests with the licensed operator. The operator will also need to bear the cost of any upgrade work that may be needed to make the transmitters capable of passing digital signals. Usually any costs are shared amongst the community that benefits from the self-help transmitter.
- 2.14 If much of the self-help transmitter needs replacing and/or the number of viewers making use of the self-help is very low, it may be more economical for those viewers to move to another way of receiving television services, for example by satellite or cable. Section 3 of this document contains more detailed information on alternative ways of receiving television services.
- 2.15 Further guidance on technical considerations may be found below and in Annex 1.

### **Licensing issues**

- 2.16 Each of the current licences for existing self-help relays is issued for a specific relay, and authorises only the re-transmission of the analogue services as set out in that licence. All current licences will cease when digital switchover is carried out in each area. To be able to use the relay to retransmit digital services, the relay must go through a frequency planning process, and obtain a new 'digital' self-help licence.

## Deciding whether to retain a digital self-help after switchover

### Considerations for self-help operators

2.17 There are a number of factors that self-help operators will need to take into account when deciding whether to retain their self-help relay after switchover. These include:

- How many viewers are dependent on the self-help relay?
- Are viewers willing to contribute to cost of any upgrades? Are alternative sources of funding available?
- Will signals from one of the broadcaster's own transmitters cover the area at switchover?
- Is the transmitter equipment compatible with digital signals?
- How much will it cost to adjust or upgrade the system to digital operation (if necessary)?
- The condition and likely life of the transmitter
- If the self-help transmitter is going to be retained, when should any conversion work be carried out?
- What is the availability and cost of alternative means of receiving television?

These considerations are dealt with in more depth below and in later sections of this document.

### How many viewers are dependent on the self-help relay?

2.18 Self-help relays generally serve quite small numbers of viewers, from single numbers of properties up to around 100 households. Some later relays built to remedy urban reception problems may serve a greater number of households.

2.19 The number of viewers using a self-help relay may have decreased since it was installed if viewers have adopted satellite or cable reception. However, some households may still be reliant on the self-help for additional sets (for example in bedrooms and kitchens). Conversely, if there has been new house building in the area, the number of viewers may actually have increased since the transmitter was built.

2.20 When considering whether to retain their self-help after switchover, operators will need to make their own assessment of the number of viewers that make use of the transmitter. Ofcom does hold the original documents for each transmitter which contain an indication of how many households may have been served by individual transmitters at the time of planning. However, many of these documents are now very old and Ofcom holds no information on how many viewers are actually making use of any self-help transmitter. A local survey, or community notices, may help establish how many people are using the self-help transmitter.

### Are viewers willing to contribute to cost of any upgrades? Are alternative sources of funding available?

- 2.21 Operators should consult the local community to see whether viewers would be prepared to contribute to the costs of any upgrades (if required – see below). The costs associated with the installation and upkeep of a self-help transmitter falls to the licensed self-help operator, and these costs are usually shared between the households that use the transmitter for their television reception.
- 2.22 Scheme operators may also want to consider their financial planning for the switchover process, perhaps with the aim of spreading the cost of any transmitter conversion work over a number of years. In some cases grants from bodies such as local councils, economic development agencies or charities may also be available to help with the capital costs.

### Will signals from one of the broadcaster's own transmitters cover the area at switchover?

- 2.23 Self-help relays fill-in localised coverage deficiencies and are usually situated in sparsely populated areas where the shape of the terrain makes it difficult for the broadcasters to provide all viewers with television signals.
- 2.24 The coverage of digital signals after switchover will be substantially the same as the analogue services that they will replace. This means that viewers in most areas that are unable to receive analogue television from one of the broadcasters' transmitters at present will probably not be able to receive digital services after switchover. However, the broadcasters will be improving the coverage of some transmitter sites, and will be building a small number of additional transmitters in order to allow digital signals to match the current coverage of analogue services. Digital UK will be making a switchover postcode checker available which will include details of whether these enhanced transmissions will provide a service in a particular area.
- 2.25 Some communities may however find that direct reception from a broadcaster operated transmitter will become possible at switchover, and therefore their self-help transmitter will no longer be required. This will only usually be the case where the reason for the poor analogue reception is 'ghosting', which is caused by signal reflections (reflections do not generally affect digital TV reception). However, if the analogue signals are poor because the community is a long way from the nearest broadcaster-operated transmitter, or if the local terrain blocks its signals, the conversion of the broadcasters' transmitter network is unlikely to improve reception prospects.
- 2.26 A postcode coverage checker will be available on Digital UK's website in the run-up to switchover. This will provide information on whether a particular postcode is likely to be able to receive signals from a broadcaster-maintained transmitter after switchover. While the coverage checker will give reliable results in most cases, it will be based on a computer 'model' of transmission and reception conditions, and therefore cannot achieve 100% accuracy, particularly where there are very localised reasons for poor reception such as tall trees or buildings.
- 2.27 Detailed guidance on the technical circumstances when a self-help transmitter may not be needed after switchover may be found in Annex 1.

### Is the transmitter equipment compatible with digital signals?

- 2.28 There are two basic types of self-help transmitter system. The first, and simplest, is known as an '*active deflector*'. Active deflectors simply beam their signals out using the same frequencies as those used by the distant ('parent') transmitter. As there are two sources of signals on the same transmission frequencies, the signals from the parent and relay have the potential to interfere with each other. Because of this, active deflectors can only be used in areas where there is little or no population nearby, or where the local terrain prevents interference from reaching neighbouring communities.
- 2.29 The second type of system is known a '*transposer*'. Here, the self-help system electronically adjusts the frequencies of the signals from the distant transmitter, and then boosts and re-transmits them in the same way as an active deflector. This type of system is less likely to cause interference, and is therefore more suitable for use in built-up areas, or where there are other communities nearby. However, the transmitter's output frequencies need to be carefully chosen so as not to cause interference to neighbouring areas, and interference-free transmission frequencies for transposers are not available in all parts of the UK.
- 2.30 Beyond these two basic categories, there are a wide variety of equipment makes and models used in self-help systems. Some equipment will need little or no modification at switchover in order to transmit digitally, while other equipment will require more complex adjustments or replacement. Detailed guidance on how to assess the suitability of a self-help transmitter for digital operation may be found in Annex 1

### How much will it cost to upgrade the system to digital operation (if necessary)?

- 2.31 Some transmitters may only need minor adjustments to settings such as their output power levels or filters. This type of work could probably be carried out during a visit by a maintenance engineer. If however equipment replacement is required, costs could range from a few hundred pounds (if, for example, new output filters are required) to several thousand pounds (if more, or all, of the electronic transmitter equipment needs replacement). Apart from equipment costs, an initial professional assessment of the existing equipment, as well as labour costs, will need to be budgeted for. Self-help relay operators may therefore wish to obtain estimates or quotes for any work from competent local installers: The Confederation of Aerial Industries or the Independent Digital Standards Commission can provide details of their installer members, and contact details for these organisations are provided in Appendix 4.
- 2.32 Upgrades to other equipment, such as aerials, masts, or equipment cabins, could be required if they are old or in poor condition. However, such upgrades are not directly related to digital switchover, as replacement of old equipment would have been required in any case.
- 2.33 All TV viewers will need to buy or rent digital reception equipment (such as Freeview set-top-boxes or digital satellite receivers) regardless of whether they rely on a self-help transmitter or a broadcaster-maintained transmitter. In order to maintain full equipment functionality (for example, the ability to watch one programme while recording another), all TV and video recorders in a household will need to be converted to digital operation. However, analogue video and DVD recorders will continue to be able to play back existing tapes and discs, even if they are not converted.

- 2.34 Where a self-help transmitter is converted to digital operation, in some cases viewers' aerials may need to be adjusted or replaced at switchover (even if they are in good condition). This is because it may sometimes be necessary to require individual transmitters to use different transmission frequencies than they do at present. We will only be able to tell whether such changes are likely to affect particular schemes when we carry out the detailed technical planning for each scheme, after we have received a licence application from the operator. We will however try to give operators as much notice as possible if such changes will be necessary. More information is available in Annex 1.

### The condition and likely life of the transmitter

- 2.35 Transmitter equipment has a finite useful lifespan, even if it has been well maintained. As some systems date back to the early 1980s, it could well be that a number of self-help installations are reaching the point where equipment needs to be replaced. Digital switchover offers the ideal opportunity to carry out such work, if the community decides to retain their transmitter system.
- 2.36 Before deciding to spend any money operators should assess the overall condition of the transmitter system. If the equipment housing, aerials or power feed are in poor condition, it may not be worth replacing parts of the transmitter to make it capable of transmitting digital signals. If the costs of replacement are very high, it may be more economic for communities to adopt an alternative means of receiving digital television like satellite or cable.

### If the self-help transmitter is going to be retained, when should any conversion work be carried out?

- 2.37 An installer should be able to tell you whether replacement transmission equipment is required. If so, you should obtain the equipment and have as much of the installation work as possible carried out a few weeks (or even months) in advance of switchover, while still maintaining the old analogue transmissions. Final installation and the 'switch' to digital could then be carried out as soon as possible after the system's 'parent' transmitter switched to digital. Practical issues such as the amount of free space in the equipment housing may limit the amount of 'pre-installation' work that can be carried out, and your installer would be able to advise further.

### What is the availability and cost of alternative means of receiving television?

- 2.38 When the programme of licensing self-help transmitters was launched in 1980, there was only one way of receiving television signals: through a rooftop aerial. Although the broadcasters were at that time increasing the coverage of television signals by building dozens of new transmitters every year, it was recognised that not every household would ultimately be able to receive signals from a transmitter built by the broadcasters.
- 2.39 There is now a range of different ways of receiving television services including satellite, cable and increasingly via broadband. Further information on all of the options available for receiving digital television is available in Section 3.

## Section 3

# Alternative reception options

- 3.1 Until relatively recently, the only way for most viewers to receive the main terrestrial channels was through a normal rooftop aerial. This was one of the reasons that the self-help transmitter scheme was set up in the early 1980s.
- 3.2 Today however, there are a number of other TV 'platforms' which offer alternative ways of receiving TV services. In some cases, these other platforms may prove to be more cost-effective or convenient than converting an analogue self-help system to digital operation. Details of the main alternative platforms are provided below.
- 3.3 When deciding on the most appropriate platform to use, we recommend that scheme operators obtain detailed costings for each option being considered.
- 3.4 Note that at the time of writing, some of the platforms (in particular IPTV and BBC / ITV Freesat) are in the early stages of development, or have not yet been established. However, they may well provide viable alternatives for more viewers as digital switchover approaches. Prices and service details are provided for guidance only, and up-to-date information should always be confirmed with the service provider concerned. The listing of a particular commercial service does not imply endorsement by Ofcom, and the list of service providers is not intended to be exhaustive. Up-to-date information on the range of digital TV reception options is available on Digital UK's website ([www.digitaluk.co.uk](http://www.digitaluk.co.uk)). A postcode checker is also available on Digital UK's website which shows the range of digital platforms available at particular locations.

## Digital Satellite

- 3.5 Reception of satellite signals requires a receiving dish mounted on the outside of each property (or a single dish serving a block of flats etc.). Planning permission may be required for satellite dish installations in some circumstances<sup>3</sup>. A cable connects the dish to a satellite receiver box in the home, which is then connected to the TV set. Satellite systems generally require professional installation, the cost of which may be included (or subsidised) as part of a commercial package.
- 3.6 Satellite signals cover almost the whole of the UK, though in a small number of cases viewers who have very steep sided hills or other large obstructions close to their homes may not be able to receive signals from the satellite.

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<sup>3</sup> Planning guidelines for satellite dishes have recently been relaxed in England, Wales, Scotland and Northern Ireland. See [www.communities.gov.uk/index.asp?id=1144585](http://www.communities.gov.uk/index.asp?id=1144585) for information on the situation in England, [http://new.wales.gov.uk/docrepos/40382/4038231121/403821/403821/403823/A\\_Householders\\_Plan ning\\_Gui1.pdf?lang=en](http://new.wales.gov.uk/docrepos/40382/4038231121/403821/403821/403823/A_Householders_Plan ning_Gui1.pdf?lang=en) for Wales, [www.planningni.gov.uk/Devel\\_Control/info\\_leaflets/antennas/default.htm](http://www.planningni.gov.uk/Devel_Control/info_leaflets/antennas/default.htm) for Northern Ireland; and <http://www.opsi.gov.uk/legislation/scotland/ssi2007/20070209.htm> for the revised regulations in Scotland.

- 3.7 Satellite services can either be received on a subscription basis (where a monthly fee is payable), or on a non-subscription basis where there are no ongoing costs after the initial installation.

### Subscription satellite services

- 3.8 Subscription satellite services are provided by Sky. A range of packages are available from £15 per month.
- 3.9 Detailed information on the full range of subscription satellite services is available from Sky at [www.sky.com](http://www.sky.com), or by calling 08705 800 874.

### Non-subscription satellite services

- 3.10 Non-subscription satellite services are available via 'freesat from Sky'. The service offers the five main terrestrial channels, along with other services including additional channels from the BBC, ITV, and five. Freesat from Sky is available for a one-off cost of £150, which includes the dish, receiver, viewing card, and installation.
- 3.11 Alternatively, if viewers already have a dish and Sky Digibox in their home, a freesat viewing card can be purchased from Sky for £20. The freesat from Sky channels will also continue to be available to viewers who choose to cancel their Sky subscription (after their minimum contract period has elapsed).
- 3.12 More information on freesat from Sky is available at [www.freesatfromsky.com](http://www.freesatfromsky.com) or by calling 0870 240 5651.
- 3.13 *BBC / ITV Freesat*: The BBC and ITV have recently announced that they intend to offer their own non-subscription satellite service, which would be distinct from the one already provided by Sky. The BBC Trust (the BBC's governing body) recently approved the proposals, and the service is expected to launch in spring 2008.

### Practical Issues related to Satellite reception

- 3.14 *Reception in multiple rooms*: Signals from a satellite receiver can be distributed to other rooms in a house using conventional aerial cabling or wireless 'video senders'. However, in order to watch different programmes in different rooms, each TV set needs to be connected to its own satellite receiver, each of which in turn needs to be wired to the dish (or a 'switch' device if many receivers are being used). The extra equipment and cabling will have a cost impact on non-subscription viewers. Alternatively, Sky subscribers have the option of taking out a 'multiroom' subscription, which allows receivers to be used in more than one room at a reduced cost compared to a 'full' second subscription.
- 3.15 *Video Recorders*: Recorders also need to be connected to (or incorporate) their own satellite receiver in order to record a different programme to that being watched on the TV set. The Sky+ recorder incorporates two receivers to allow this, and is available to both Sky subscribers and freesat from Sky viewers at a cost of £10 per month (an initial equipment cost may also be payable).

### **Cable**

- 3.16 Around 50% of the UK population live in areas where cable TV is available, though this is predominantly in urban areas. Cable services are provided on a subscription

basis, though a TV package may be included for free if householders subscribe to the cable company's telephone services.

- 3.17 Virgin Media ([www.virginmedia.com](http://www.virginmedia.com), 0845 840 7777) is the UK's largest cable operator. Some smaller networks operate over more limited areas, in particular WightCable ([www.wightcable.com](http://www.wightcable.com)) and Smallworld ([smallworldmedia.com](http://smallworldmedia.com)) who serve areas such as the Isle of Wight, along with parts of south-west Scotland and north-west England.
- 3.18 Virgin Media's standard TV packages cost from £11 per month.

### Practical issues related to cable reception

- 3.19 *Reception in multiple rooms:* Signals from a cable receiver box can be distributed to other rooms in a house using conventional aerial cabling or wireless 'video senders'. However, in order to watch different programmes in different rooms, each TV set needs to be connected to its own cable box, each of which in turn needs to be wired to the cable coming in from the street. Additional subscription fees and installation costs may be required, and these should be explored with the cable company direct.
- 3.20 *Video Recorders:* Recorders also need to be connected to (or incorporate) their own cable receiver in order to record a different programme to that being watched on the TV set. Solutions such as The V+ digital recorder from Virgin Media incorporate two receivers to allow this, and equipment and subscription costs should be confirmed with the cable company.

### **IPTV – TV over broadband**

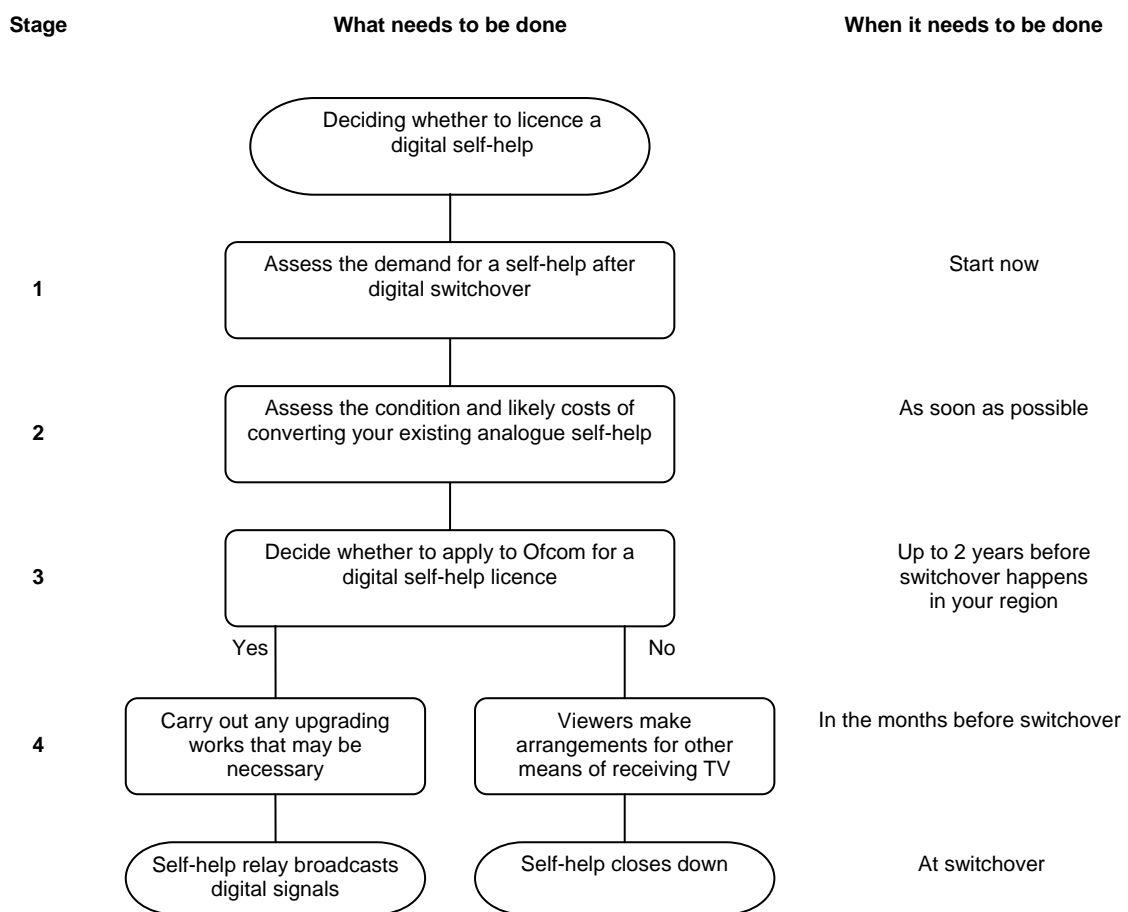
- 3.21 IPTV (internet protocol TV) is an emerging technology which offers TV services over broadband internet connections via a normal telephone line. Broadcast-quality TV pictures require a large amount of data to be transferred across the broadband network, so a fast internet connection is essential. In practice, broadband speeds can be affected by factors such as the home's distance from the telephone exchange, and the quality of the telephone line itself. Some IPTV services require the operator to install special equipment in the local exchange, even if that exchange is already broadband-enabled.
- 3.22 IPTV services are generally provided on a subscription basis, and they are often combined with a broadband subscription.
- 3.23 One IPTV service which includes the main terrestrial channels is Tiscali TV ([www.tiscali.co.uk](http://www.tiscali.co.uk)), though the service currently has limited geographic coverage.
- 3.24 Other IPTV services (e.g., BT Vision, [www.btvision.bt.com](http://www.btvision.bt.com)) are intended to complement existing digital TV platforms, such as Freeview, and as such do not offer the main terrestrial channels in areas which cannot receive Freeview. However, the range of channels may increase over time.
- 3.25 It is widely predicted that IPTV has good potential for the future delivery of TV services, and it is anticipated that the range and coverage of services will increase over the coming years as the market develops.

**Section 4**

# Assessing the need for a digital self-help relay and applying to Ofcom for a licence

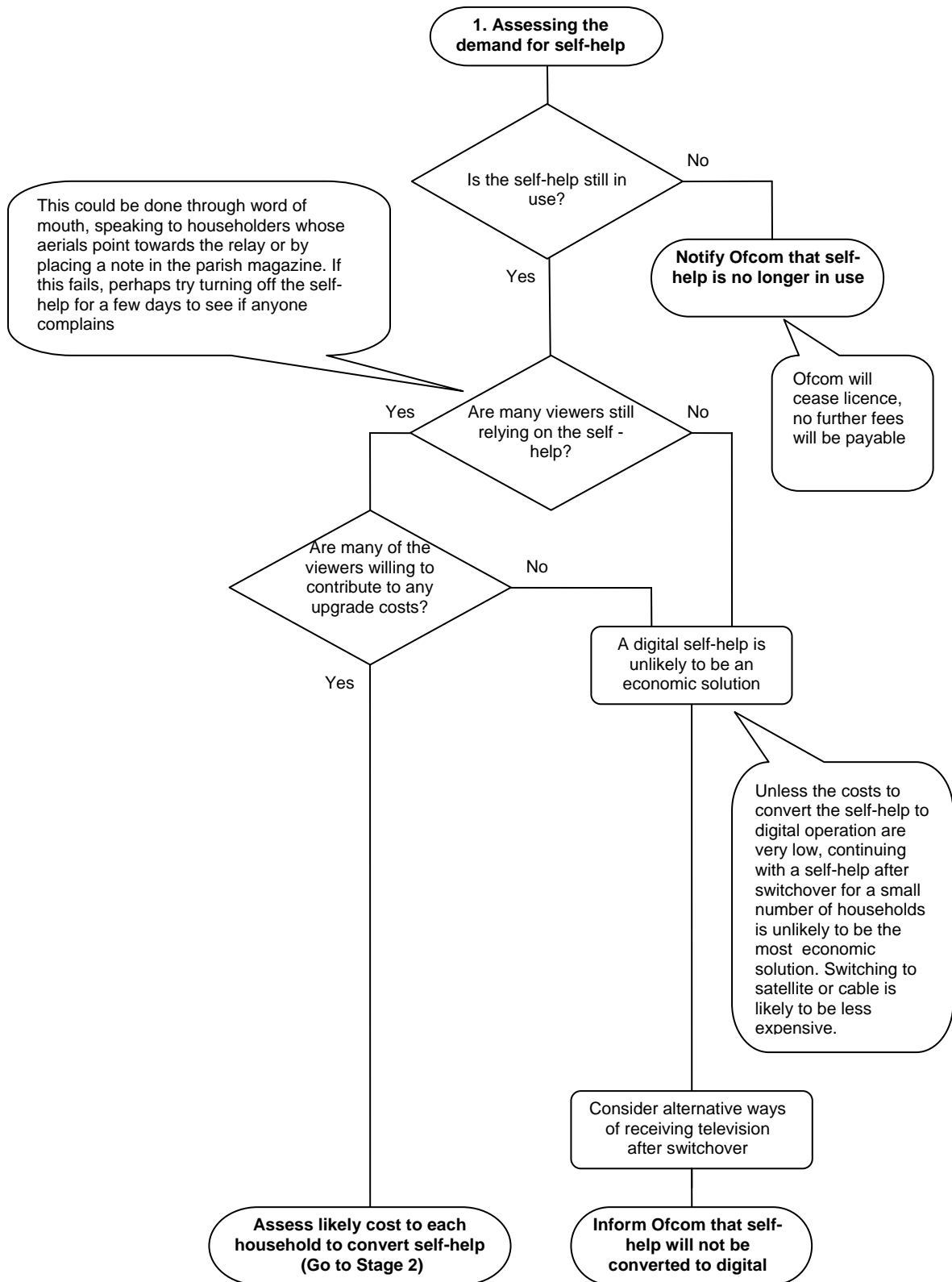
## Deciding whether to licence a digital self-help relay

There are four main stages to deciding whether to licence a digital self-help transmitter and putting it into operation.

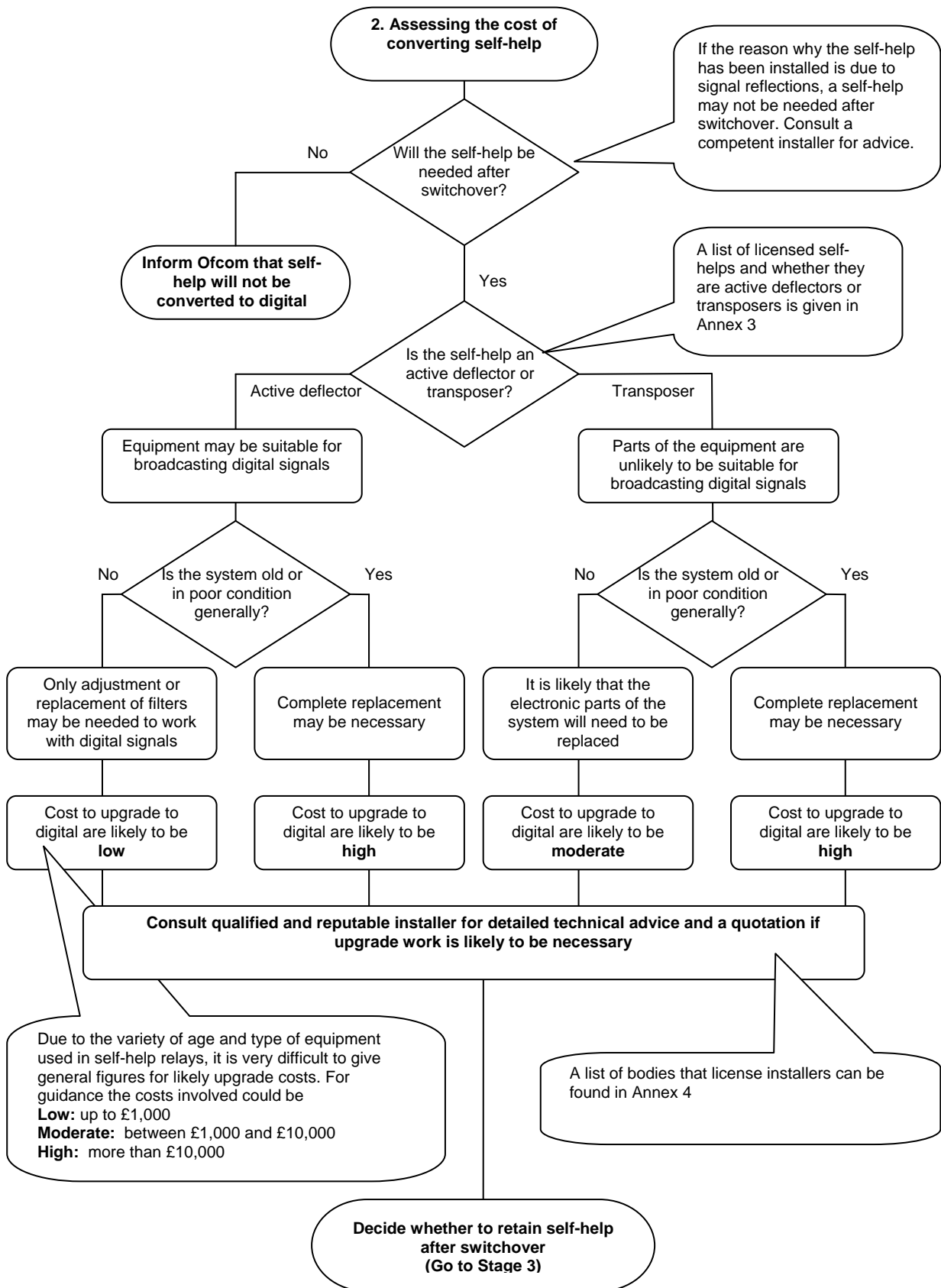


Each of these stages is dealt with in more detail in the following pages.

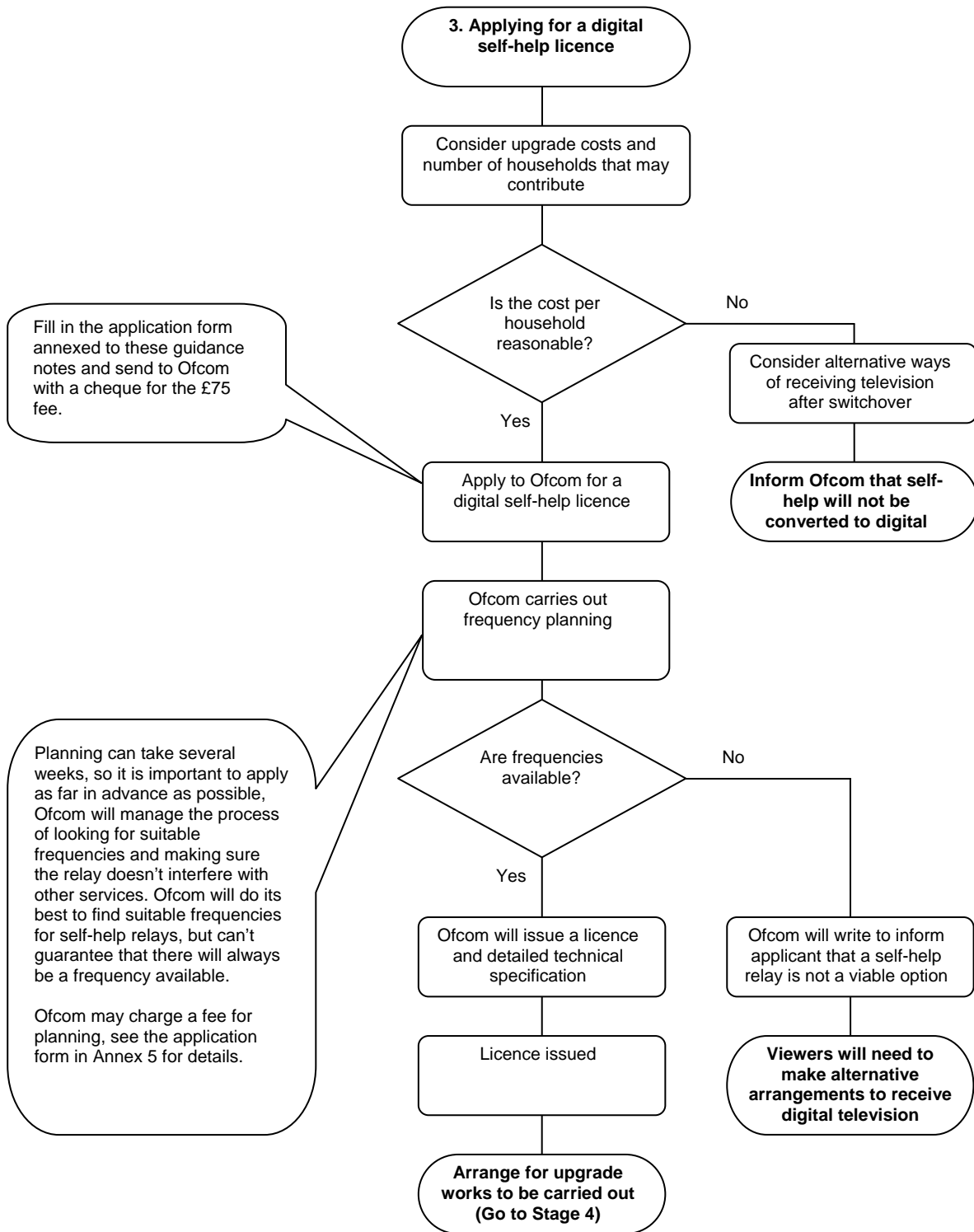
**Stage 1: Assessing the demand for a self-help relay**



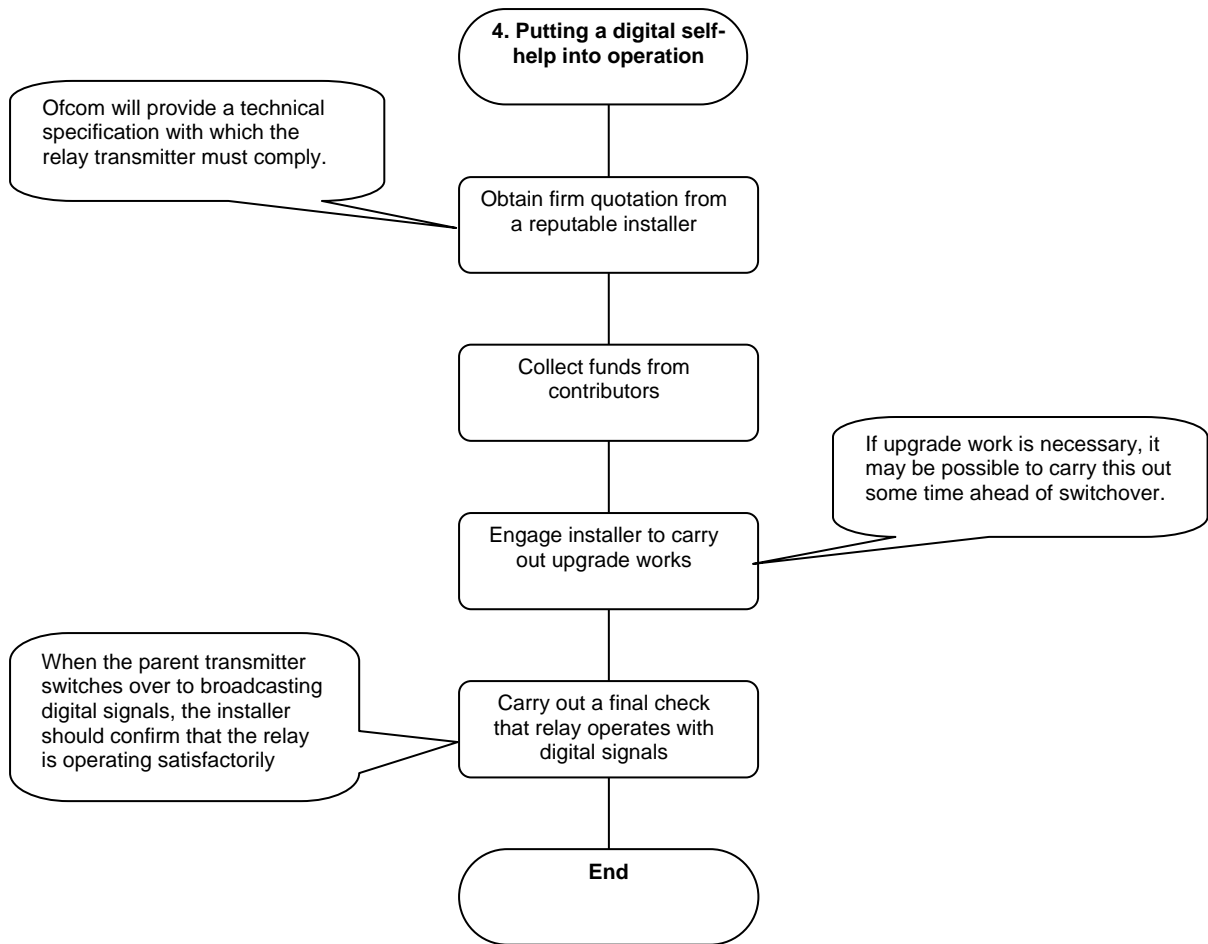
## Stage 2: Assessing the likely costs of upgrading an analogue relay to digital



### Stage 3: Deciding whether to retain self-help and applying for a digital self-help licence



## Stage 4: Putting a digital self-help into operation



## Annex 1

# Technical Information

## Causes of reception problems, and their implications after switchover

- A1.1 There are three principal reasons for poor reception from a broadcaster-operated transmitter which may have caused communities to install self-help systems:
- Low signal strength – very grainy or snowy pictures
  - Interference – wavy lines or patterning on pictures
  - Reflections – ‘ghosting’ where one or more fainter images are present usually to the right of the main image on a picture

### Low signal strength

- A1.2 Communities that suffer low signal strength usually do so because a physical feature like a hill or valley prevents signals from a transmitter reaching viewers in that area. The visible effect on analogue TV is that pictures are very ‘snowy’ or ‘grainy’
- A1.3 As the broadcasters will be using the same network of transmitters for digital television as they currently do for analogue signals, reception conditions are unlikely to improve after switchover in areas with low signal strengths which are due to physical obstructions.

### Interference

- A1.4 Interference: Distant transmitters can cause interference to viewers’ reception in some areas and during certain atmospheric conditions. The visible effect of interference on analogue signals is that pictures have wavy lines, narrow lines, or stripes on them. In severe cases, a picture from another channel may be superimposed on the TV screen.
- A1.5 Digital television can be more tolerant of some types of interference (as long as it is not too severe), and reception conditions may therefore improve after switchover. In addition, the frequencies of some transmitters will change at switchover, which may also alleviate the interference problem. Predictions of post-switchover digital reception prospects at individual postcodes, which take into account the likelihood of interference from distant transmitters, will be made available in the run-up to switchover.

### Reflections

- A1.6 Reflections, often called ‘ghosting’, occur when television signals are bounced off buildings or hills. This means that, in addition to the main (wanted) signal from the transmitter, viewers’ TV aerials will be receiving one or more other versions of the signal, each of which will be very slightly delayed compared to the original. The visible effect on analogue TV is that one or more fainter versions of the picture are seen on the screen, usually slightly to the right of the main picture.

- A1.7 Digital TV signals are designed to be far more tolerant of signal reflections than analogue TV, and therefore in the vast majority of cases, communities whose self-help transmitter was installed because of ghosting should be able to receive digital signals directly from a broadcaster-maintained transmitter at switchover and the self-help transmitter will no longer be needed.

### Compatibility of existing transmitter equipment with digital signals

- A1.8 *Please note that this section contains more advanced technical information, primarily intended to help systems installers etc. make an assessment of the feasibility of equipment conversion for existing self-helps.*
- A1.9 There are two basic types of self-help transmitter equipment: *Active deflectors* amplify and rebroadcast the signals from the parent transmitter without altering the frequencies. *Transposers* change the frequencies of the signals, before re-broadcasting them.
- A1.10 The technical parameters listed in self-help licences state whether the system operates as an active deflector or a transposer (in box 'I' of the licence Schedule for licences issued by Ofcom). The main technical issues which need to be considered if an operator wishes to convert their system to digital operation are listed below, but operators should always seek detailed advice on their own systems from their maintenance contractor or other suitably qualified person.

#### Active Deflectors

- A1.11 Broadband, unfiltered, equipment could probably operate satisfactorily after switchover, depending on the signal levels. However, adjustments might be needed to signal levels for optimum performance, or to avoid signal overloading and the generation of spurious signals.
- A1.12 To improve performance, a number of active deflector systems incorporate channel filtering. If self-help's parent transmitter uses the same frequencies after switchover as it currently does for analogue services (as will be the case at most transmitters), the system could probably work as above, or might be made workable if adjustments are made to the transmitter's filters. Details of post-switchover frequency assignments for the broadcaster-maintained transmitter network will be made available on Ofcom's website at <http://www.ofcom.org.uk/tv/ifi/tech/>.
- A1.13 Some active deflector systems employ block down-conversion to a lower intermediate frequency in order to make filtering more effective before mixing signals back to the original UHF frequencies. However, phase noise introduced by the local oscillator in such systems means that they are unlikely to provide usable digital signals, and replacement is likely to be required.

#### Transposers

- A1.14 Existing transposers will probably not produce usable digital signals without adjustment, modification, or replacement. This is mainly because of the high phase noise in the local oscillator stages of analogue transposers. Some adjustment to the filtering might also be needed.

### Number of multiplexes

- A1.15 As active deflector systems re-use the frequencies used by their parent transmitter and, Ofcom will generally approve the re-transmission of as many multiplexes as is broadcast by the parent transmitter. This will usually be three digital multiplexes if the parent transmitter is one of the broadcasters' relay transmitters, or six multiplexes if the parent transmitter is a main transmitter.
- A1.16 Transposer systems change the frequency of the signals that they re-broadcast and therefore require a number of clear frequencies to be available. Where it is necessary to use a transposer system to serve a particular area, Ofcom will consider what clear frequencies are available.

### Changes to the transmitter type

- A1.17 Because of the need to use scarce transmission frequencies efficiently, in some cases it may be necessary for changes to be made to the type of transmitter and/or its output frequencies at switchover (e.g. a transposer may need to become an active deflector or vice-versa, or the current output frequencies may fall within the range which will be 'released' for other purposes at switchover). If so, changes to viewers' receiving aerial groups or polarisations may be necessary, and the cost of this will need to be taken account of. The frequency planning work for each scheme will identify whether the type of transmitter will need to change at switchover, and it is unfortunately not possible to predict whether changes will be necessary in advance of this frequency planning analysis being carried out.

### Re-broadcast links

- A1.18 The input stages of most self-help systems will not currently be receiving usable digital signals, as the majority of relay transmitters do not yet broadcast digitally, and the existing 80 digital transmitters operate at relatively low powers. At switchover however, digital signals will be increased in power, generally to -7dB (one-fifth) relative to analogue effective radiated powers (ERP) for the three 'public service' multiplexes. This represents an increase of around 10 times above current digital transmission powers. Digital signals will also be added to all existing relay transmitters at switchover, again generally at 7dB below analogue ERPs.
- A1.19 If a self-help operator applies for a digital licence, a basic assessment of the availability of a digital re-broadcast link (RBL) will be made as part of the frequency planning process. However installers should confirm the likely availability of a reliable incoming signal at the site itself, including whether adjustments or modifications to the receive antenna might be required.
- A1.20 In a small number of cases where level of the incoming signals to the transmitter are very low, it is possible that the quality of the incoming digital signal after switchover will not be high enough to reliably re-broadcast digital signals. Professional measurements of the incoming analogue signal levels could help the frequency planner to predict whether this will be the case, and we may sometimes need to request such measurements from operators when we receive digital licence applications.

## Frequency masks and spurious emissions

- A1.21 International standards for digital (DVB-T) transmitters specify the frequency spectrum 'masks' which should be adhered to in order to limit spurious emissions (unwanted signals from a transmitter that could cause interference to others).
- A1.22 We are working with European bodies to develop a standard which is appropriate to low-power self-help transmitters. We hope the new standard can be adopted during the summer of 2007, and will be available to transmitter equipment manufacturers as an 'interface requirement'.

## Annex 2

# Frequently Asked Questions

### What is a self-help relay?

- A2.1 A self-help relay is a privately-owned and operated system that boosts television signals and improves reception usually to a fairly small area. They work by picking up weak signals from a more distant transmitter, amplifying them and then beaming the stronger signals to viewers' homes. [Further info in section 2]

### Why do we have a self-help at present?

- A2.2 Not all parts of the UK are served by terrestrial television signals. The broadcasters have built an extensive network of transmitters to bring coverage to an estimated 98.5% of households. Some locations remain unserved, usually in remote areas although some built-up areas are also affected.
- A2.3 When the programme of licensing private transmitters started, the majority of systems were installed by communities that were unable to receive adequate signals from any of the broadcasters' transmitters. These communities were often in remote areas and unlikely to be served by a broadcaster-provided transmitter in the future. This was usually because the community was small or scattered or difficult to serve because of the terrain. Self-help transmitters have also been increasingly installed in towns and cities as a means of restoring television reception to small neighbourhoods whose reception has been degraded by tall building developments.

### Why are terrestrial TV signals not available to everyone in the UK?

- A2.4 Television signals are principally broadcast from a network of 50 main transmitters situated across the UK. Television signals behave rather like light, and a clear path is needed between the transmitter and viewers' aerials. In many parts of the UK, the shape of the land (hills, mountains and valleys) prevents viewers from receiving signals from a main transmitter. The broadcasters therefore embarked upon a programme of building smaller 'relay' transmitters to supplement the coverage of the main transmitters, and this programme continued until the mid-1990s. There are now over 1,150 transmitters in operation providing good quality signals to an estimated 98.5% of UK households. However it was recognised from a fairly early stage that even an extensive network of broadcaster-provided transmitters would not be able to serve everyone in the UK and that pockets of poor reception would remain.

### Why did the broadcasters stop building transmitters?

- A2.5 The programme of building relay transmitters lasted until the 1996 at which time it was decided by the Government, regulator and broadcasters to cease building new relay transmitters.
- A2.6 The reason for this decision was threefold:
- with so many transmitters already in service, it was becoming increasingly difficult to find suitable clear frequencies for more transmitters to use

- each new transmitter was serving smaller and smaller communities and had reached the limit of economic viability
- resources would be better allocated to the introduction of digital television services that are more efficient in their use of the spectrum

**We shouldn't have to pay to convert our equipment to digital operation. Why aren't the broadcasters or Ofcom meeting the cost?**

A2.7 It is a long-established principle that the self-help relay equipment is installed and maintained by the community which benefits from the transmitter. While there may well be costs over and above normal maintenance requirements in order to convert schemes to digital operation, neither Ofcom nor the broadcasters can offer direct help with these costs: this is comparable to the need for viewers of a broadcaster-operated transmitter to fund the cost of digital reception equipment and aerial upgrades at switchover, if required. We will however provide free frequency planning services to communities wishing to convert their transmitters, and will endeavour to provide advice where possible.

## Annex 3

# List of licensed self-help transmitters by switchover region

<b>Anglia</b>		Switchover date: 2011			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
231	LOWESTOFT (1)	TACOLNESTON	AD	St Peters St	67
306	GT YARMOUTH	TACOLNESTON	T	1 km S town centre	30
381	LOWESTOFT (2)	TACOLNESTON	T	Rotterdam Rd	125
405	WINTERTON-ON-SEA	TACOLNESTON	T	15 km N Great Yarmouth	300
445	WITHAM	SUDBURY	T	14 km NE Chelmsford.	118
459	FELIXSTOWE WEST	SUDBURY	T		1000
<b>Border</b>		Switchover date: 4 <sup>th</sup> quarter 2008 to 2 <sup>nd</sup> quarter 2009 <sup>4</sup>			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
299	KENTMERE A	KENDAL	AD	12 km N Kendal	45
8299	KENTMERE B	KENTMETRE A	AD	12 km N Kendal	
215	GREAT LANGDALE	WINDERMERE	AD	14 km NW Windermere	12
408	PARKCLIFFE	WINDERMERE	AD	7 km S Windermere	
133	DILLICAR	WINDERMERE	AD	6 km NW Sedbergh	20
75	KELD	CALDBECK	AD	30 km E Sedbergh	17
143	CROSBY GARRETT	CALDBECK	AD	35 km N Dumbarton	42
214	BORELAND	CALDBECK	AD	25 km NE Dumfries	22
290	DEEPDALE	CALDBECK	AD	20 km SW Penrith	20
8112	ESKDALEMUIR B	CALDBECK	AD	45 km NW Carlisle	31
477	CARSPHAIRN	CALDBECK	T	35 km SE Ayr	84
490	STAINTON	CALDBECK	T	8km W Penrith	251
210	ESKDALE:BOOT A	WHITEHAVEN	AD	20 km SE Whitehaven	65
8210	ESKDALE:BOOT B	GOSFORTH	AD	20 km SE Whitehaven	27
84	NEWLUCE	CAMBRET HILL	AD	12 km NE Stranraer	50
344	BURNBANKS	LOWTHER VALLEY	T	14 km S Penrith	40
383	ROOKING	GLENRIDDING LINK	T	Patterdale, 18 km SW Penrith	20
389	HARTSOP	GLENRIDDING LINK	T	20 km SW Penrith	20
34	GARSDALE	MILLTHROP	T	14 km E Sedbergh	63
428	GLENTROOL	CAMBRET HILL	AD	15 km NW Newton Stewart	50
97	DENT	DENTDALE	AD	10 km E Sedbergh	25
20	SOURHOPE	SELKIRK	AD	nr Yetholm	6
<b>Central</b>		Switchover date: 2011			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
387	BURTON (SHOBNALL)	SUTTON COLDFIELD	T	1 km W Burton-on-Trent	60
432	COALVILLE	SUTTON COLDFIELD	T	18 km NW Leicester	600
468	SOLIHULL	SUTTON COLDFIELD	T	Land Rover building	400
463	BRAUNSTONE	WALTHAM	T	5 km SW Leicester city centre	170
411	WHITTON	RIDGE HILL	T	35 km NW Hereford	40

<sup>4</sup> The Whitehaven relay and dependent transmitters will switchover in October 2007

<b>Granada</b>		Switchover date: 4 <sup>th</sup> quarter 2009			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
219	DUDDON VALLEY A	WINTER HILL	AD	25 km N Barrow-in-Furness	50
8219	DUDDON VALLEY B	DUDDON VALLEY A	AD		
7219	DUDDON VALLEY C	DUDDON VALLEY B	AD		
322	DOLPHINHOLME	WINTER HILL	AD	8 km SE Lancaster	10
364	TARNBROOK	WINTER HILL	AD	12 km SE Lancaster	6
369	WARRINTON	WINTER HILL	T	0.5 km NW town centre	84
396	ST HELENS	WINTER HILL	T	1 km W St town centre	10
424	CLEVELEYS	WINTER HILL	T	6 km N Blackpool	
426	GORSE HILL	WINTER HILL	T	5 km SW Manchester	300
444	WARRINGTON	WINTER HILL	T	2km NW town centre	80
446	MANCHESTER OT	WINTER HILL	T	Old Trafford	
520	BLACKPOOL F/C	WINTER HILL	T	1 km S town centre	100
420	EWOOD PARK	WINTER HILL	T	2 km S Blackburn	200
132	ABBEYSTEAD	LANCASTER	AD	10 km SE Lancaster	30
319	BLAWITH	MILLOM PARK	AD	15 km SW Windermere	40
419	DUDDON BRIDGE	MILLOM PARK	T	19 km N Barrow-in-Furness	12
456	BURNLEY-TURF MOOR	PENDLE FOREST	T	1 km E town centre	100
<b>London</b>		Switchover date: 2012			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
378	WHITE CITY	CRYSTAL PALACE	T	9 km W central London	80
438	DEPTFORD	CRYSTAL PALACE	T	south-east London	100
474	GREENFORD	CRYSTAL PALACE	T	12 km N Heathrow Airport	203
502	HENDON	CRYSTAL PALACE	T	Graham Park estate	50
<b>Meridian</b>		Switchover date: 2012			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
448	PORTSMOUTH DOCKS	ROWRIDGE	T	2 km N city centre	50
<b>STV Central</b>		Switchover date: 2010 to 2011			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
29	GLENDARUEL	BLACK HILL	AD		40
8029	GLENDARUEL B	GLENDARUEL	AD		12
434	BLYTH BRIDGE	BLACK HILL	AD	30 km SW Edinburgh	50
8181	BENMORE B	BLACK HILL	AD	50 m WNW Glasgow	7
94	ARDTORNISH A	BLACK HILL	T	22 km NW Oban	15
36	BALQUHIDDER	BLACK HILL	T	12 km NW Callander	42
484	BLAIR DRUMMOND	BLACK HILL	T		5
257	LOCH VENACHAR	CALLANDER	AD	4 km W Callander	14
100	CALLANDER PARK	CALLANDER	AD	22 km NW Stirling	1
115	COLONSAY	TOROSAY	AD	Island of Colonsay	59
272	GLENUIG	TOROSAY	AD	43 km W Fort William	9
280	KINLOCHMOIDART	TOROSAY	AD	24 km S Mallaig	11
298	BARGUILLEAN	TOROSAY	AD	12 km E Oban	3
303	STRONTIAN	TOROSAY	AD	32 km WSW Fort William	14
309	LOCH CAOLISPORT	TOROSAY	AD	20 km SW Lochgilphead	85
8309	LOCH CAOLISPORT A	LOCH CAOLISPORT	AD	20 km SW Lochgilphead	
7309	LOCH CAOLISPORT B	LOCH CAOLISPORT	AD	20 km SW Lochgilphead	
6309	LOCH CAOLISPORT C	LOCH CAOLISPORT	AD	20 km SW Lochgilphead	
5309	LOCH CAOLISPORT D	LOCH	AD	20 km SW Lochgilphead	

		CAOLISPORT			
399	PORTUAIRK	TOROSAY	AD	68 km W Fort William	12
8094	ARDTORNISH B	TOROSAY	AD	68 km W Fort William	
86	BR OF AWE	TOROSAY	T	20 km E Oban	21
217	GLEN LOY	COW HILL	AD	7 km N Fort William	4
227	S.LOCHEILSIDE	COW HILL	AD	Loch Eil, 5-15 km NW Fort William	25
279	GAIRLOCHY	COW HILL	AD	12 km NE Fort William	6
450	CONAGLEN	COW HILL	AD	9 km SW Fort William	8
5	DERVAIG	GLENGORM	AD	Isle of Mull	42
176	ARISAIG HOUSE	GLENGORM	AD	42 km W Fort William	13
183	LOCHAILORT	GLENGORM	AD	35 km W Fort William	21
184	SOUTH TIREE	GLENGORM	AD	South Tiree, Inner Hebrides	17
368	STRATHAIRD	GLENGORM	AD	Isle of Skye	15
382	TORRIN	GLENGORM	T	25 km SE Portree	19
8308	ISLE ORNSAY B	MALLAIG	AD	Island of Skye	50
308	ISLE ORNSAY A	MALLAIG	T	Island of Skye	
7308	ISLE ORNSAY C	MALLAIG	T	Island of Skye	
6101	GLENELG D	ISLE ORNSAY C	AD	10 km SE Kyle of Lochalsh	
122	CLACHAIG INN	ONICH	AD	Glencoe	10
71	GLENBRANTER	STRACHUR	T	14 km NW Garelochhead	28
164	GLENSPEAN A	SPEAN BRIDGE	AD	25 km ENE Fort William	
8164	GLENSPEAN B	SPEAN BRIDGE	AD	25 km ENE Fort William	25
221	INVERINAN	DALMALLY	AD	20 km SE Oban	4
493	SALEN (AROS)	FIUNARY	AD	Island of Mull	11
193	AUGHENCHEYNE	THORNHILL	AD		
246	DULLATUR	CRAIGKELLY	T	20 km NE Glasgow	40
380	EDINBURGH	CRAIGKELLY	T	Sighthill area	167
144	INVERNSNAID	DARVEL	AD	35 km N Dumbarton	8
518	CRAIGIE GARDENS	DARVEL	T		1
31	LOCH STRIVEN	WEST KILBRIDE	AD	Loch Striven	
370	BURNTON	LETHANHILL	T	nr Dalmellington	80
240	KILCHIARAN	PORT ELLEN	AD	Islay, 10 km W Bowmore	3
30	ORMIDALE	TIGHNABRUAICH	AD	North of Strathclyde region	25
181	BENMORE A	ARDNADAM	AD	50 km WNW Glasgow	30
<b>STV North</b>		Switchover date: 2010			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
251	GLENFINNAN	DSAT	SAT	20 km WNW Fort William	20
204	FYVIE	DURRIS	AD	37 km NW Aberdeen	10
261	OYNE	DURRIS	AD	33 km NW Aberdeen	11
395	GLEN TANAR	DURRIS	AD	11 km E Ballater	13
117	STRATHDON A	DURRIS	T	60 km W Aberdeen	25
8117	STRATHDON B	DURRIS	T		25
7117	STRATHDON C	DURRIS	T		
6117	STRATHDON D	DURRIS	AD		
5117	STRATHDON E	DURRIS	AD		
4117	STRATHDON F	DURRIS	AD		
329	ABERDEEN (OLD TOWN)	DURRIS	T	2 km N city centre	837
466	GLENLIVET	DURRIS	T	15 km E Grantown-on-Spey	70
508	HAUGHTON HOUSE C/P	DURRIS	T	1 km N Aford Aberdeenshire	1
512	ABERDEEN-TALISMAN	DURRIS	T	1 km SW city centre	100
213	GLEN ERROCHTY	BLAIR ATHOLL	AD	55 km NW Perth	17
501	DUNDEE	TAY BRIDGE	T	Ladywell Avenue	100
349	CRANLARICH	KILLIN VP	T	30 km NW Callander	6
436	LOCH TAY	KILLIN VP	T	30 km SW Pitlochry	30
469	MARAGOWAN	KILLIN VP	T	1/2 km NE Killin	
8469	CLACHAN	KILLIN VP	T		
460	FILEAN MOR	TUMMEL BRIDGE	T	11 km W Kinloch Rannoch	90
8460	TALLA-A-BHEITHE	FILEAN MOR	T		
443	SANDWICK	BRESSAY	T	18 km SW Lerwick	24
435	HEYLOR	COLLAFIRTH HILL	T	43 km NNW Lerwick	5
487	OLNA FIRTH	COLLAFIRTH HILL	T	26 km NNW Lerwick	7
423	CLOUSTA	WEISDALE	T		
15	HALLADALE	RUMSTER	AD	Strath Halladale (south)	20

Self-help guidance notes

		FOREST			
42	ALTNAHARRA	RUMSTER FOREST	AD	30 km N Lairg	20
91	GLENMORE	RUMSTER FOREST	AD	8 km SE Aviemore	25
207	STRATHY WEST	RUMSTER FOREST	AD	22 km W Thurso	17
226	BLANDY	RUMSTER FOREST	AD	50 km W Thurso	20
400	DAVIOT	RUMSTER FOREST	AD	8 km SE Inverness	7
8016	STRATHNAVER B	RUMSTER FOREST	AD	48km SW Thurso	21
8165	U.STRTHNAIRN B	RUMSTER FOREST	AD	20 km S Inverness	8
131	SUISGILL	RUMSTER FOREST	AD		
352	MACDUFF	RUMSTER FOREST	T	30 km W Fraserburgh	30
462	ARMADALE	RUMSTER FOREST	T	30 km W Thurso	30
510	PORTSOY C/P	RUMSTER FOREST	T	10 km W Banff	1
169	BORROBOL	RUMSTER FOREST	AD	80 km NE Inverness	7
14	BORGIE	BEN TONGUE	AD	45 kn W Thurso	10
16	STRATHNAVER A	BEN TONGUE	AD	48km SW Thurso	14
177	BERRIEDALE	KNOCKMORE	AD	90 km NE Invernes,	13
385	LOCHROSQUE	KNOCKMORE	AD	Lochrosque Lodge 40 km W Dingwall	2
7289	GLASCARNOCH C	KNOCKMORE	AD		
8177	LANGWELL	KNOCKMORE	AD	90 km NE Invernes	3
415	CARRON	KNOCKMORE	T	20 km S Elgin	35
509	TURRIFF C/P	KNOCKMORE	T	Aberdeenshire	1
22	LAGGAN	KINGUSSIE	AD	50 km S Inverness	84
18	AMAT	BALBLAIR WOOD	AD	30km NW Invergordon	15
451	CULKIEN	EITSHAL	AD	40 km N Ullapool	18
8182	STAFFIN B	EITSHAL	AD		
8289	GLASCARNOCH B	EITSHAL	AD	40 km NW Inverness	
114	STRATHKANAIIRD	EITSHAL	AD	8 km N Ullapool	15
7	TORRIDON V/P	EITSHAL	T	80 km W Inverness	110
8007	TORRIDON B	TORRIDON V/P	AD	80 km W Inverness	15
194	DURNAMUCK	EITSHAL	T	10 km W Ullapool	21
9	KINLOCHEWE	EITSHAL	T		
151	SEILEBOST	CLETTRAVAL	AD		
96	CARBOST	SKRIAIG	AD		
174	INVERINATE	SKRIAIG	AD	15-20 km E Kyle of Lochalsh	126
225	LUIB	SKRIAIG	AD	Isle of Sky	15
285	TOTARDOR	SKRIAIG	AD	Isle of Skye	4
129	HEAST	DUNCRAIG	AD	Isle of Skye	21
206	TASKAVAIG	DUNCRAIG	AD	Isle of Skye	29
126	BALMACARA SQ	DUNCRAIG	AD	3 km E Kyle of Lochalsh	30
136	ACHMORE	ATTADALE	AD	80 km W Inverness	29
80	UIG B	UIG	AD	20 km NW Portree	126
270	AUCHTERTYRE	ARDINTOUL	AD	60 km NNW Fort William	17
101	GLENELG B	KYLERHEA	T	10 km SE Kyle of Lochalsh	25
8101	GLENELG I	KYLERHEA	T	10 km SE Kyle of Lochalsh	
7101	GLENELG E	GLENELG B	AD	10 km SE Kyle of Lochalsh	
3101	GLENELG C	GLENELG B	AD	10 km SE Kyle of Lochalsh	
8092	SHIELFOOT	GLENELG B	T	44 km W Fort William	10
163	UPPER FOYERS	ROSEMARKIE	AD	Upper Foyers	42
165	U.STRTHNAIRN A	ROSEMARKIE	AD	20 km S Inverness	25
175	DALWHINNIE	ROSEMARKIE	T	60 km S Inverness	50
470	CULLODEN	ROSEMARKIE	T	10 km E Inverness	25
8	GARVE	AUCHMORE WOOD	AD	30 km NW Inverness	67
289	GLASCARNOCH	AUCHMORE WOOD	T	40 km NW Inverness	12
271	INVERMORISTON - A	FORT AUGUSTUS	AD	38 km SW Inverness	44
8271	INVERMORISTON - B	INVERMORISTON - A	AD	38 km SW Inverness	
7271	INVERMORISTON - C	INVERMORISTON - A	T	38 km SW Inverness	
6271	INVERMORISTON - D	INVERMORISTON -	AD	38 km SW Inverness	

		C			
302	INVERGARRY	FORT AUGUSTUS	T	35 km NE Fort William	85
331	TORVEAN	INVERNESS	AD	2 km SW Inverness	
<b>Tyne Tees</b>		Switchover date: 2012			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
233	LOW HABER	PONTOPIKE	AD	West Allen Dale, 18 km SW Hexham	
449	NORTH HARTLEPOOL	PONTOPIKE	T	15 km N Middlesborough	84
212	KIELDOR DAM	PONTOPIKE	AD	60 km WNW Newcastle-on-Tyne	6
480	FAR TOWN (ALSTON)	ALSTON	AD	27 km NE Penrith	
158	LANGTHWAITE	BILSDALE	AD	50 km SW Middlesborough	30
343	HAWSKER BOTTOM	BILSDALE	AD	5 km SW Whitby	
179	GARSDALE (PIN FOLD)	BILSDALE	T	4-13 km E Sedberg	63
224	COTTERDALE	BAINBRIDGE	AD	Wensleydale	12
<b>Ulster</b>		Switchover date: 2012			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
162	CONIE GLEN	DIVIS	AD	9 km S Campbeltown	25
427	CHAPEL FIELDS	DIVIS	T	Central Belfast	61
441	ELLIOTTS HILL	LIMAVADY	T	13 km SE Ballymena, Co. Antrim	90
<b>Wales</b>		Switchover date: 3 <sup>rd</sup> quarter 2009 to 1 <sup>st</sup> quarter 2010			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
72	ABERGWESYN	WENVOE	AD	7 km N Llanwrtyd Wells	20
410	YSTRADFELLTE	WENVOE	AD	30 km NE Port Talbot	20
464	PENTREBACH	WENVOE	T	3 km S Merthyr Tydfil	100
485	BARRY	WENVOE	T	10 km SW city centre	300
497	CELTIC MANOR	WENVOE	T	5 km E Newport	80
504	NEW INN C/P	KILVEY HILL	T	8 km NE Tenby	1
178	LLANFIHANGEL-NANT-BRAN	BRECON	AD	12 km NW Brecon	
392	TAL-Y-CAFN	CONWAY	T	6 km S Llandudno junction	17
371	ABERGORLECH	CARMEL	AD	Dyfed	5
496	CWMERE	CARMEL	AD	11 km NE Aberystwyth	10
170	HUNDREDHOUSE	LLANDRINDOD	T	Cregina, 8-11 km SE Llandrindod Wells	80
336	LLANFAREDD	LLANDRINDOD	T	3 km NW Builth Wells	10
190	DERNOL VALLEY	RHAYADER	AD	35 km E Aberystwyth	10
222	GLYNTAWA	ABERCRAF	AD	30 km NE Swansea	28
60	ABERGYNOLWYN	PRESELY	AD	Gwynned	84
8060	CAERBERIAN	PRESELY	AD		
161	RHYD-YR-ONNEN	PRESELY	AD	20 km N Aberystwyth	20
297	DREFELIN	PRESELY	AD	20 km NNW Carmarthen	36
513	CWMTYDU A/D	PRESELY	AD	17 km NNE Newcastle Emlyn	10
311	ABERARAD	LLANDYFRIOG	T	1 km E Newcastle Emlyn	75
347	RHYDYMAIN	DOLGELLAU	T	10 km NW Dolgellau	15
237	TAL-Y-LLYN A	BLAENPLWYF	AD	31 km NE Aberystwyth	4
8237	TAL-Y-LLYN B	BLAENPLWYF	AD		
345	ABERLLEFENI	BLAENPLWYF	T	15 km SE Dolgellau	30
421	BRYNRODYN	DOLYBONT	AD	7 km N Aberystwyth	1
401	GLASPWLL	CORRIS	AD	21 km NE Aberystwyth	7
346	GWYDDELWERN	MOEL Y PARC	AD	17 km E Llangollen	62
317	LLANDEGLA	MOEL Y PARC	T	12 km E Wrexham	33
500	PENTRE-LLYN-CYM	MOEL Y PARC	T	18 km E Betws-y-Coed	15
52	PANDY	GLYN CEIRIOG	AD	9 km SW Wrexham	20
185	LLANFIHANGEL-GLYN-MYFYR	CERRIG Y DRUDION	AD	31 km NW Llangollen	28
522	LLANDYFRIOG C5	PRESELY	T	5 km E Castle Emlyn	900

<b>West</b>		Switchover date: 2010			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
61	LUCCOMBE	MENDIP	AD	6 km w Minehead	38
337	CHEDDAR	MENDIP	T	15 km E Weston-super-Mare	1674
335	CLAVERTON	BATH	AD	4.5 km E Bath	40
<b>Westcountry</b>		Switchover date: 2 <sup>nd</sup> to 3 <sup>rd</sup> quarter 2009			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
301	PARRACOMBE	CARADON HILL	T	17 km NE Barnstaple	80
363	BRAYFORD	CARADON HILL	T	13 km E Barnstaple	60
425	LEE	ILFRACOMBE	T	4 km W Ilfracombe	65
397	FRESHWATER C/P	STOCKLAND HILL	AD	2 km SE Bridport, Dorset	250
418	BICKLEIGH	STOCKLAND HILL	T	15 km N Exeter	25
422	LADRAM BAY	STOCKLAND HILL	T	15 km SE Exeter	400
111	LANNACOMBE	BEACON HILL	AD	25 km SW Torbay	4
351	NTH MOLTON	HUNTSWAW CROSS	T	18 km E Barnstaple	30
407	COVERACK	REDRUTH	T	15 km S Falmouth	70
413	CHALLABOROUGH BAY	REDRUTH	T	20 km SE Plymouth	20
<b>Yorkshire</b>		Switchover date: 2011			
Self-help Number	Name	Parent transmitter	Type	Location	Target Population (households)
321	DUNFORD BRIDGE	EMLEY MOOR	AD	14 km S Huddersfield	15
430	HMP LEEDS	EMLEY MOOR	T		30
457	THIXENDALE	EMLEY MOOR	T	25 km ENE York	40
278	STRIDWOOD	ADDINGHAM	AD	10 km NW Ilkley	10
168	HALTON GILL	KETTLEWELL	AD	60 km NW Leeds	10

Notes: 'T' = transposer; 'AD' = active deflector.

'Target Population' is the number of households the scheme was intended to serve when it was initially planned. The number of current viewers may well have changed.

## Annex 4

## Useful Contacts

<p>Confederation of Aerial Industries          Communications House          41a Market Street          Watford WD18 0PN          Tel: 01923 803030  <a href="http://www.cai.org.uk">www.cai.org.uk</a></p>	<p><i>Trade body representing aerial installers</i></p>
<p>IDSC (The Independent Digital Standards Commission)          Unit 39 Coney Green Business Centre          Wingfield View          Clay Cross          Chesterfield S45 9JW          Tel: 0844 848 1690  <a href="http://www.idsc.uk.com">www.idsc.uk.com</a></p>	<p><i>Trade body representing aerial installers</i></p>
<p>Highlands and Islands Enterprise          Cowan House          Inverness Retail and Business Park          Inverness IV2 7GF          Tel: 01463 234171  <a href="http://www.hie.co.uk">www.hie.co.uk</a></p>	<p><i>Public body that has provided assistance to some communities in the Highlands and Islands of Scotland in building self-help relay transmitters</i></p>
<p>Registered Digital Installers Licensing Body          Coney Green Business Centre          Clay Cross          Chesterfield          S45 9JW          01246 252857  <a href="http://www.rdi-lb.tv">www.rdi-lb.tv</a></p>	<p><i>Licensing body for Registered Digital Installers</i></p>

## Annex 5

# Application form for Community Television Relay Service (“self-help”) licence

## Notes on completing the form

Please read the Guidance Notes for self-help operators carefully before completing this form.

To submit the application, print this form and send it to the address shown below. Complete the form in BLOCK CAPITALS using black ink. Please keep a copy of your completed form.

TV Planning & Licensing  
Riverside House, 3rd floor  
Ofcom  
2a Southwark Bridge Road  
London SE1 9HA

Checklist before submitting the application:

- Have you filled in all parts of the form?
- Have you enclosed the £75 licence fee (cheques payable to ‘Ofcom’)?
- Have you signed and dated the declaration?

If you have further questions about the licensing process, you may contact the TV Planning & Licensing team by email ([tv.licensing@ofcom.org.uk](mailto:tv.licensing@ofcom.org.uk)) phone (020 7783 4376 or 020 7783 4323) or fax (020 7783 4303).

## Timescales

Ofcom will deal with your application as and when it is received. We will normally acknowledge your application within two working days of receipt.

Each self-help relay needs to go through a frequency planning process, which can take several weeks and sometimes months. It is important that Ofcom receives your application well in advance, and at the very minimum no later than six months before you want to start transmitting.

There may be cases where no frequencies are available. If this is the case, Ofcom will inform the applicant as soon as possible.

## Fees

Ofcom will normally charge a £75 licence administration fee for a five year self-help licence.

In cases where the self-help relays will use the same frequencies as the DTT multiplexes to relay the services, Ofcom will generally not apply incentive pricing to the use of the spectrum, and the operator will therefore only pay the £75 licence administration fee.

However, if Ofcom receives proposals for digital self-help relays that would require the use of additional spectrum, these will be considered on a case by case basis and in the light of the information about all other potential uses of the spectrum. Additional fees, consistent with the application of incentive pricing, may be appropriate in these cases.

Ofcom may also charge a fee of £2,500 for the frequency planning work it carries out for a self-help relay. The fee covers the costs to Ofcom of identifying suitable frequencies for a new self-help, checking for interference to and from other transmitters and production of a detailed technical specification. No fee will be charged for the frequency planning for existing self-helps wishing to switch to digital.

## Application form

### 1. All applicants, please provide the following information:

#### (a) Applicant contact details

Name of the applicant (the company, group or individual applying for the licence):

.....

Address.....

.....

Telephone ..... Fax .....

Website ..... Email .....

**(b) Contact details for primary contact** (or the person with ultimate responsibility for the service):

Name .....

Title ..... Email .....

Telephone ..... Fax .....

**(c) Are you currently operating a self-help relay?**

Yes

No

*If you have answered 'yes' above please, continue to question 2.*

*If you have answered 'no' but want to apply for a licence for a new Self-Help relay, continue to question 3.*

### 2. Operators of existing self-help relays, please provide the following:

**(a) Self-help Licence Number:** .....

**(b) Operator's contact details** (if different from information provided in question 1 above):

.....

Telephone ..... Fax .....

Website ..... Email .....

**(c) Contact details for primary contact** (if different from information provided in question 1 above):.....

Name .....

Title ..... Email .....

Telephone ..... Fax .....

**(d) What type of transmitter is your self-help relay?**

(Please ✓ one box)

Active Deflector

Transposer

Don't know

**(e) Which television channels does the self-help relay receive and transmit?**

(Please ✓ all relevant boxes)

BBC 1

BBC 2

ITV 1

Channel 4

Channel 5

**(f) How many homes does your self-help relay serve?**

.....

**3. Applicants for proposed new self-help relays, please provide the following:**

**(a) Intended coverage area** (name of location): .....

**(b) Transmitter details:**

National Grid Reference (of proposed transmitter location)	
Source of signals from (name of parent transmitter)	
Description of proposed aerial (if known)	
Aerial height above ground level	
Why is a self-help needed?	
How many households are likely to depend upon signals from the relay?	

**Note:** Before applying to Ofcom, you will need to find a location where the transmitter can be located. Please provide as much detail as you have available. A map outlining the extent of the area the self-help is expected to cover would also be helpful. On receipt of the application, Ofcom will make an initial assessment of the availability of suitable frequencies for a self-help relay for your area. Ofcom cannot guarantee that suitable frequencies will be found in all cases.

**Declaration**

I hereby apply for a licence to provide a Community Television Relay Service under the Wireless Telegraphy Act 2006.

I declare that all details given in this application form are correct to the best of my knowledge.

**Signature of applicant**

**Full name in CAPITAL LETTERS**

**Position in organisation**

**Date of application**

Ofcom manages personal data in accordance with the Data Protection Act 1998. Once a service is licensed, Ofcom places contact details for the service on its web site and/or in other relevant publications. These are normally the contact details supplied at the time of application. Please let us know if those details have changed, or if you have any concerns with the

## Self-help guidance notes

publication of those details. A more detailed statement of our data protection policy is available on request or on our web site ([www.ofcom.org.uk](http://www.ofcom.org.uk)).